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10/816,393	04/01/2004	Virinder Mohan Batra	CHA920040003US1	9578
23550 7590 04/23/2008 HOFFMAN WARNICK & D'ALESSANDRO, LLC 75 STATE STREET 14TH FLOOR ALBANY, NY 12207				
EXAMINER SMITH, CAROLYN L				
ART UNIT		PAPER NUMBER		
1631				
NOTIFICATION DATE		DELIVERY MODE		
04/23/2008		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTOCommunications@hwdpatents.com

### Office Action Summary

**Application No.**

10/816,393

**Applicant(s)**

BATRA ET AL.

**Examiner**

Carolyn L. Smith

**Art Unit**

1631

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 January 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 and 10-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 10-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

Applicant's amendments and remarks, filed 1/29/08, are acknowledged. Amended claims 1, 8, 10, 14, 17, and 20 are acknowledged.

Applicant's arguments, filed 1/29/08, have been fully considered but they are not deemed to be persuasive. Rejections and/or objections not reiterated from the previous office actions are hereby withdrawn. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set presently being applied to the instant application.

Claims 1-8 and 10-20 are herein under examination.

#### ***Claim Rejections - 35 USC § 112, First Paragraph***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-8 and 10-16 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

#### **NEW MATTER**

Applicant did not point to any written support in the originally filed application for the claim amendments. There is no written support for the following amendments: "at least one"

processing unit (claim 1), "memory operably associated with the at least one processing unit" (claim 1), "a security system storable in memory and executable by the at least one processing unit" (claim 1), identifying "all" coding and non-coding regions (claims 1, 8, 14), "the encrypted coding regions require decryption by a secure process to recreate the nucleotide chain sequence" (claims 1 and 14).

While the specification mentions a single computer system (page 7, last paragraph), there is no mention of at least one processing unit, which is broader in scope as it encompasses more than one processing unit. There is no mention of memory in the originally filed application. There is no mention of identifying "all" coding and non-coding regions. There is no mention of decryption by a secure process being "required".

Because the introduction of "at least one" processing unit (claim 1), "memory operably associated with the at least one processing unit" (claim 1), "a security system storable in memory and executable by the at least one processing unit" (claim 1), identifying "all" coding and non-coding regions (claims 1, 8, 14), "the encrypted coding regions require decryption by a secure process to recreate the nucleotide chain sequence" (claims 1 and 14) do not appear to have adequate written support in the claims, specification, and/or drawings, as originally filed, these limitations are considered to be NEW MATTER. Claims 2-7, 10-13, and 15-16 are also rejected due to their dependency from claims 1, 8, and 14. This rejection is necessitated by amendment.

***Claims Rejected Under 35 U.S.C. § 112, Second Paragraph***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention.

Claims 1-7 recite “a system for” limitations that are vague and indefinite. While the claims now comprise a processing unit, it is unclear if the “system for” limitations are intended to be programs or physical structural unit limitations. Clarification of this issue via clearer claim wording is requested. This rejection is maintained.

Applicants argue they have amended claims 1-7 to recite necessary structural limitations for the systems listed in the body of claim 1. This statement is found unpersuasive as it is still unclear if the “system for” limitations are intended to be physical limitations (i.e. structural units) of the security system or programs performed by the security system of claim 1.

***Claim Rejections – 35 USC §102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 6-8, 10-12, 14, 15, 17, 18, and 20 are rejected under 35 USC 102(b) as being anticipated by Rungsarityotin et al. (Pure Appl. Chem., 2002, Vol. 74, No. 6, pages 891-897) with additional support from the Merriam-Webster online dictionary (“encrypt”, “encode”, “encipher”, and “cipher”). This rejection is maintained and reiterated for reasons of record.

The Merriam Webster online dictionary defines “encrypt” as “encipher or encode”. The term “encode” means “to specify the genetic code for” or “converting a message into code” (see Merriam-Webster online dictionary). The term “encipher” means to convert into cipher (“a combination of symbolic letters” or “a message in code”) (see Merriam-Webster online dictionary). These definitions are not being used as prior art, but rather to support the definitions of these terms.

Rungsarityotin et al. disclose a grid-enabling software technology with a grid security system including a computer processor as well as interface and storage system (i.e. memory) and method featuring a security infrastructure to transform bioinformatics genomic data from different sites to a standard format (page 892, fourth paragraph to page 893, first paragraph and Figure 1) including visualizing, analyzing, and transporting XML-based DNA data (abstract) which represents a computer-implemented security system for securing an electronic version of a

nucleotide chain sequence, as stated in the preamble of claims 1 and 8, as well as a processing unit and memory as stated in instant claim 1. Rungsarityotin et al. disclose exchanging information on a particular gene or coding regions (abstract), integrating a physical map of BAC sequence from a rice chromosome (Figure 2), using BAC-end sequences and BAC fingerprint contigs and linking critical regions of interest onto a sequence-ready map (page 894, first paragraph) which represents identifying all coding and non-coding regions in the nucleotide chain sequence, as stated in instant claims 1, 8, 14, and 17. Rungsarityotin et al. disclose using expressed sequence tags (ESTs) treated as genes and marker names (i.e. AP002882 and RZ69) (in Figure 2 and page 894, first paragraph) along the sequence with non-coding regions merely listed as a line (Figure 2) and providing security over a network (page 892, last three paragraphs; abstract; and Figure 1) which represents selectively encrypting the sequence of only the coding regions identified in the nucleotide chain to provide security over a network, as stated in instant claims 1, 8, 14, and 17. Rungsarityotin et al. disclose visualizing DNA data, a method featuring a security infrastructure to transform bioinformatics genomic data from different sites to a standard format (page 892, fourth paragraph to page 893, first paragraph and Figure 1), communication between several sources of data and XML-based DNA transported for further representation and transforming XML documents (abstract; Figures 1, 2, 4) including textual or graphical output (Figure 2 caption) which encompasses the outputting, as stated in instant claims 1, 2, 8, 14, and 17. Rungsarityotin et al. disclose transporting these XML-based DNA data and using a Web browser and Web-based viewer (abstract and Figure 2), as stated in instant claims 2-4, 8, 11, 12, 15, and 18. Rungsarityotin et al. disclose grid technologies and recording DNA sequencing data in computerized databases to facilitate analysis, storage and retrieval and

creating a database containing the encrypted and unencrypted non-coding regions as discussed above (page 892, fourth paragraph; page 893, last two paragraphs to page 894, first paragraph; and Figure 2) which represents receiving, as stated in instant claims 6, 7, 8. Rungsarityotin et al. disclose visualizing DNA (abstract), transforming data (page 892, third and fifth paragraph), and choosing between textual and graphical output and transforming XML documents to scalable vector graphics (Figure 2 caption) which represents decrypting and regenerating, as stated in instant claims 6, 8, and 17. Rungsarityotin et al. disclose a system involving converting algorithms to convertible code such as Java for data acquisition, translation, and distributing computational tasks (page 896, second paragraph). Rungsarityotin et al. disclose using the grid data structure and query engine to respond to specific bioinformatics questions including a database for nucleotide chain queries (page 894, last paragraph to page 896, first paragraph), as stated in instant claims 7, 10, and 20. Rungsarityotin et al. disclose computers (Figure 1), Internet2 (abstract), data structures, software technologies, programs, storage systems, files, and databases (page 892, last four paragraphs and page 893, last paragraph), which represents a program product as stated in instant claims 14, 15, 17, 18, and 20.

Thus, Rungsarityotin et al. anticipate claims 1-4, 6-8, 10-12, 14, 15, 17, 18, and 20.



***Claim Rejections – 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. (e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-8 and 10-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rungarityotin et al. (Pure Appl. Chem., 2002, Vol. 74, No. 6, pages 891-897) with additional support from the Merriam-Webster online dictionary (“encrypt”, “encode”, “encipher”, and “cipher”) in view of Jorgensen et al. (US 2004/0221163 A1).

This rejection is maintained and reiterated for reasons of record.

The Merriam Webster online dictionary defines “encrypt” as “encipher or encode”. The term “encode” means “to specify the genetic code for” or “converting a message into code” (see Merriam-Webster online dictionary). The term “encipher” means to convert into cipher (“a combination of symbolic letters” or “a message in code”) (see Merriam-Webster online

dictionary). These definitions are not being used as prior art, but rather to support the definitions of these terms.

Rungsarityotin et al. describe a grid-enabling software technology with a grid security system including a computer processor as well as interface and storage system (i.e. memory) and method featuring a security infrastructure to transform bioinformatics genomic data from different sites to a standard format (page 892, fourth paragraph to page 893, first paragraph and Figure 1) including visualizing, analyzing, and transporting XML-based DNA data (abstract) which represents a computer-implemented security system for securing an electronic version of a nucleotide chain sequence, as stated in the preamble of claims 1 and 8, as well as a processing unit and memory as stated in instant claim 1. Rungsarityotin et al. describe exchanging information on a particular gene or coding regions (abstract), integrating a physical map of BAC sequence from a rice chromosome (Figure 2), using BAC-end sequences and BAC fingerprint contigs and linking critical regions of interest onto a sequence-ready map (page 894, first paragraph) which represents identifying all coding and non-coding regions in the nucleotide chain sequence, as stated in instant claims 1, 8, 14, and 17. Rungsarityotin et al. describe using expressed sequence tags (ESTs) treated as genes and marker names (i.e. AP002882 and RZ69) (in Figure 2 and page 894, first paragraph) along the sequence with non-coding regions merely listed as a line (Figure 2) and providing security over a network (page 892, last three paragraphs; abstract; and Figure 1) which represents selectively encrypting the sequence of only the coding regions identified in the nucleotide chain to provide security over a network, as stated in instant claims 1, 8, 14, and 17. Rungsarityotin et al. describe visualizing DNA data, a method featuring a security infrastructure to transform bioinformatics genomic data from different sites to a

standard format (page 892, fourth paragraph to page 893, first paragraph and Figure 1), communication between several sources of data and XML-based DNA transported for further representation and transforming XML documents (abstract; Figures 1, 2, 4) including textual or graphical output (Figure 2 caption), and which encompasses the outputting, as stated in instant claims 1, 2, 8, 14, and 17. Rungsarityotin et al. describe transporting these XML-based DNA data and using a Web browser and Web-based viewer (abstract and Figure 2), as stated in instant claims 2-4, 8, 11, 12, 15, and 18. Rungsarityotin et al. describe grid technologies and recording DNA sequencing data in computerized databases to facilitate analysis, storage and retrieval and creating a database containing the encrypted and unencrypted non-coding regions as discussed above (page 892, fourth paragraph; page 893, last two paragraphs to page 894, first paragraph; and Figure 2) which represents receiving, as stated in instant claims 6, 7, 8. Rungsarityotin et al. describe visualizing DNA (abstract), transforming data (page 892, third and fifth paragraph), and choosing between textual and graphical output and transforming XML documents to scalable vector graphics (Figure 2 caption) which represents decrypting and regenerating, as stated in instant claims 6, 8, and 17. Rungsarityotin et al. describe a system involving converting algorithms to convertible code such as Java for data acquisition, translation, and distributing computational tasks (page 896, second paragraph). Rungsarityotin et al. describe using the grid data structure and query engine to respond to specific bioinformatics questions including a database for nucleotide chain queries (page 894, last paragraph to page 896, first paragraph), as stated in instant claims 7, 10, and 20. Rungsarityotin et al. describe computers (Figure 1), Internet2 (abstract), data structures, software technologies, programs, storage systems, files, and databases (page 892, last four paragraphs and page 893, last paragraph), which represents a

program product as stated in instant claims 14, 15, 17, 18, and 20. Rungsarityotin et al. do not describe using cipher block chain encrypting.

Jorgensen et al. describe methods, systems with a processor and memory, and program products on readable media for securing transmitting data using an encryption scheme including information from DNA tests (abstract; claims 1, 14, 48, 58; and 0085) including cipher block chaining (0033, 0119), as stated in instant claims 5, 13, 16, and 19. Jorgensen et al. describe algorithms for encryption and decryption for secure connections (0069, 0077, 0080, 0103, 0119), as stated in instant claims 1 and 14. Jorgensen et al. describe an input-output apparatus adapted to input and output data (claim 1).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the method, system, and program products of Rungsarityotin et al. by use of cipher block chaining as described by Jorgensen et al. where the motivation would have been to improve the security, stability, efficiency, and flexibility of secure data transmission and application sharing over a network, as taught by Jorgensen et al. (0018 and 0019).

Thus, Rungsarityotin et al. in view of Jorgensen et al. make obvious the instant invention.

Applicant argues that Rungsarityotin et al. do not disclose, among other features, "a system for selectively encrypting the sequence of only the coding regions identified in the nucleotide chain sequence." With respect to the "system for selectively encrypting...", Applicant states the Office asserts that Rungsarityotin anticipates this feature by teaching "using expressed sequence tags (ESTs) treated as genes and marker names (i.e. AP002882 and RZ69) (in Figure 2

and page 894, first paragraph) along the sequence with non-coding regions merely listed as a line (Figure 2)." (Office Action at p. 5.) Applicant argues that substituting ESTs for portions of the nucleotide chain's actual sequence does not constitute "encrypting" the coding regions of a nucleotide chain such that "encrypted coding regions require decryption by a secure process to recreate the nucleotide chain." It is noted that Rungsaityotin et al. disclose visualizing DNA data, a method featuring a security infrastructure to transform bioinformatics genomic data from different sites to a standard format (page 892, fourth paragraph to page 893, first paragraph and Figure 1), communication between several sources of data and XML-based DNA transported for further representation and transforming XML documents (abstract; Figures 1, 2, 4) including textual or graphical output (Figure 2 caption) which represents decryption by a secure process. Applicant summarizes the definitions of "encrypt" means either "encipher" or "encode" and then interprets "encipher". This statement is found unpersuasive as the originally filed application does not provide a clear and concise definition of "encrypting" which has therefore been interpreted in a broad and reasonable manner which also means "encode". The term "encode" can simply mean "to specify the genetic code for" or "converting a message into code" (see Merriam-Webster online dictionary). Applicant argues that the use of ESTs substituted for the actual nucleotide chain sequence cannot be accurately characterized as concealing or encrypting the meaning of the coding region that would be necessary to "decrypt" by a secure process. It is noted that "concealing" is not used in the instant claims. Furthermore, it is possible that the EST or BAC or gene can be the actual "nucleotide chain sequence" since this limitation is very broad and encompasses all three. Applicant argues that the "encode" meanings are inapposite to the feature of the claimed invention. This statement is found unpersuasive as the as the originally

filed application does not provide a clear and concise definition of "encrypting" which has therefore been interpreted in a broad and reasonable manner which also means "encode". If Applicant does not want this interpretation to be included in the broadly written claims, then Applicant should narrow the claims with appropriate claim language. Applicant argues that "encrypted encoding regions require decryption" and outputting are not disclosed in the prior art. This statement is found unpersuasive as Rungsarityotin et al. disclose visualizing DNA data, a method featuring a security infrastructure to transform bioinformatics genomic data from different sites to a standard format (page 892, fourth paragraph to page 893, first paragraph and Figure 1), communication between several sources of data and XML-based DNA transported for further representation and transforming XML documents (abstract; Figures 1, 2, 4) including textual or graphical output (Figure 2 caption) which encompasses outputting. Applicant argues that claim 1 was amended to recite "an electronic version of a sequence of a nucleotide chain" and subsequently using "the" terminology to specify how long the electronic version of the sequence must be. This statement is found unpersuasive as the nucleotide chain sequence (including its first mention in line 2 of instant claim 1) does not specify what that original sequence is. It could be any sequence, such as a gene, a BAC sequence, or an EST sequence. Applicant argues that the "original" nucleotide chain sequence is the "complete" sequence with both coding and non-coding regions. This statement is found unpersuasive as the instant claims do not recite such a limitation. Applicant refers to the amended limitation "identifying all coding and non-coding regions". It is noted that "all" is considered to be NEW MATTER. Applicant argues that Rungsarityotin et al. do not teach the "outputting the electronic version of the nucleotide chain sequence" limitation. This statement is found unpersuasive Rungsarityotin et

al.disclose visualizing DNA data, communication between several sources of data and XML-based DNA transported for further representation (abstract; Figures 1, 2, 4) including textual or graphical output (Figure 2 caption) which encompasses outputting. It is noted that the "nucleotide chain sequence" can be any sequence, as already discussed. Applicant reiterates arguments for claims 1, 8, 14, and 17 which have already been found unpersuasive. Applicant argues that dependent claims are allowable due to the allowability of the independent claims. This statement is found unpersuasive as the independent claims are not allowed.

Applicant reiterates arguments in the 35 USC 103 rebuttal that have already been found unpersuasive.

### ***Conclusion***

No claim is allowed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Papers related to this application may be submitted to Technical Center 1600 by facsimile transmission. Papers should be faxed to Technical Center 1600 via the PTO Fax Center. The faxing of such papers must conform with the notices published in the Official Gazette, 1096 OG 30 (November 15, 1988), 1156 OG 61 (November 16, 1993), and 1157 OG 94 (December 28, 1993) (See 37 CFR §1.6(d)). The Central Fax Center number for official correspondence is (571) 273-8300.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carolyn Smith, whose telephone number is (571) 272-0721. The examiner can normally be reached Monday through Thursday from 8 A.M. to 6:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marjorie Moran, can be reached on (571) 272-0720.

April 14, 2008

/Carolyn Smith/  
Primary Examiner  
AU 1631